

# LightStyle™ Series Model LS-12HBd

## High Brightness, Active 3D Home Theater Projection System

### Quick Setup Guide

#### WARNING

**IMPORTANT HEALTH AND SAFETY INFORMATION FOR 3D VIEWING:** Please read and make sure you understand the following safety information before using the product for viewing 3D content. Provide this information to the end users of this product and ensure that they understand it.

It is widely recognized that stereographic display devices can cause discomfort, including, without limitation, dizziness, nausea, headaches, eye fatigue and eye-strain, in some individuals. The 3D effect and experience will vary by individual, depending on a variety of factors, including his or her health and vision. Runco recommends that users take regular breaks when watching 3D video or playing games using stereoscopic displays. Discontinue use if any discomfort occurs. Parents of young children should ensure their children avoid extensive exposure to electronic stereographic entertainment.

The quality and appropriateness of the 3D screen materials onto which the image is projected and the quality of the 3D content being displayed both have a significant and noticeable impact on the overall 3D experience. A properly-calibrated projection system, including glasses and an optimized third-party screen, displaying high-quality 3D content is the best formula for immersive and comfortable 3D experiences. Please refer to the **LightStyle™ LS-12HBd Installation/Operation Manual** for proper projector installation and usage instructions.

The glasses that accompany this product are not safe to use as sunglasses, protective eyewear or any use outdoors or other than only in conjunction with the proper operation of the Runco product with which they are sold. It is common to dim the lights in a home theater. Using 3D glasses and the immersive imagery of stereoscopic imagery can increase the risk of tripping or falling in the dark. Special care should be taken.

Do not tilt your head while using the 3D glasses.

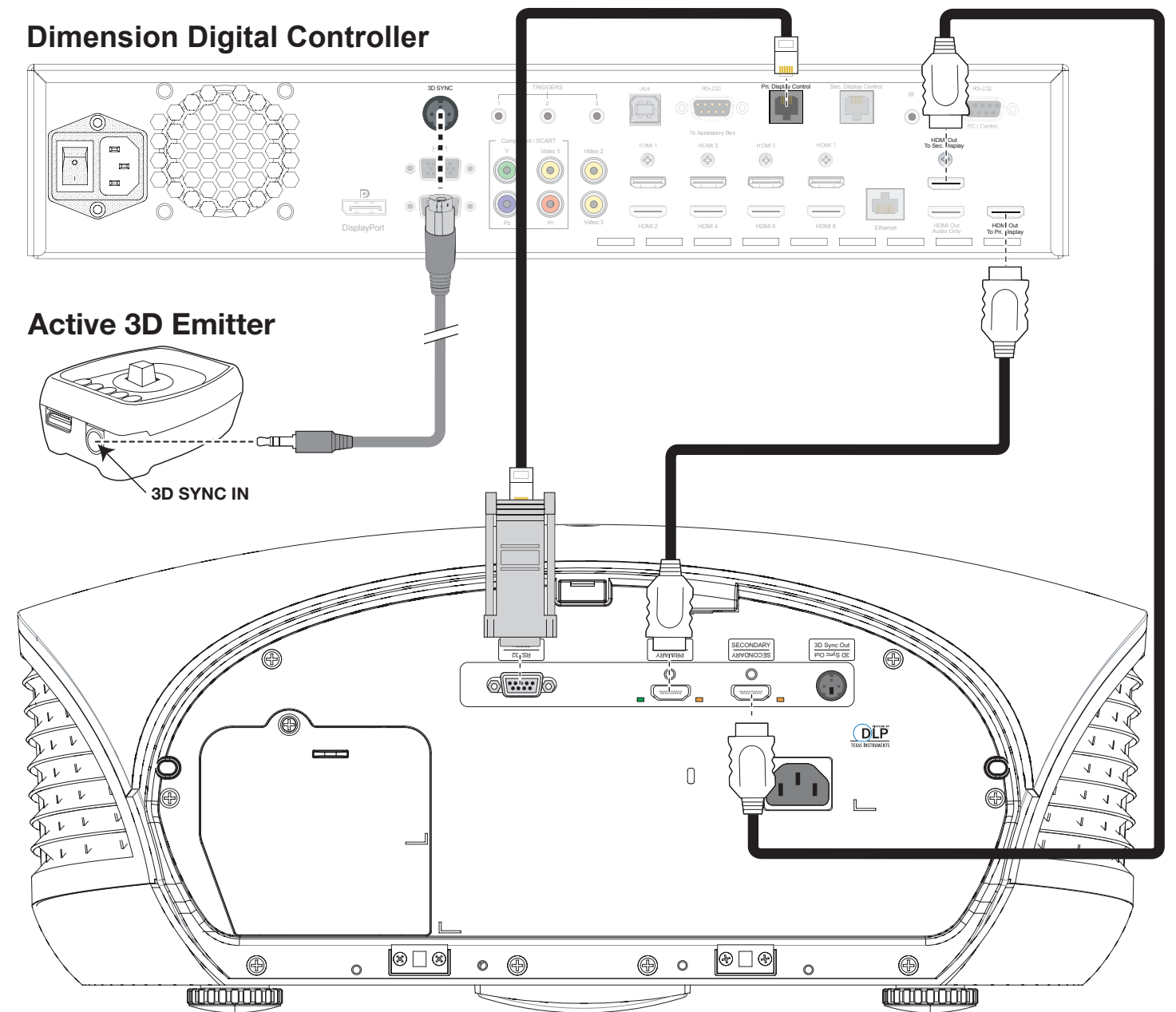
#### Installation Overview

Step	Procedure	For Details, Refer to This Page in the <i>LightStyle™ LS-12HBd Installation/Operation Manual</i>
1	Choose a location for the projector	21
2	Install anamorphic lens mounting assembly (optional)	28, 40
3	Mount the projector	33
4	Mount the Dimension Digital Controller	35
5	Connect the Dimension Digital Controller to the projector (see diagram at right)	36
6	Connect other external equipment to Dimension Digital Controller (optional): <ul style="list-style-type: none"> <li>• Audio processor or secondary display device</li> <li>• Control system interface (RS-232)</li> <li>• 12-volt trigger-activated equipment (retractable screens or screen masking)</li> <li>• External IR repeater</li> <li>• Network hub, router or gateway (Ethernet)</li> </ul>	38
7	Connect signal sources to the Dimension Digital Controller	43
8	Connect the Active 3D Emitter to the Dimension Digital Controller (see diagram at right)	49
9	Connect system components to AC power	49
10	Apply power to the projector	50
11	Adjust primary lens: projected image size (zoom), position (shift) and focus	24, 51
12	For rear-screen and/or ceiling-mount installations, select the proper picture orientation	51
13	Use Image Alignment controls to fine-tune image geometry	52
14	Install and adjust secondary anamorphic lens (optional)	54

#### Installation Overview (Continued)

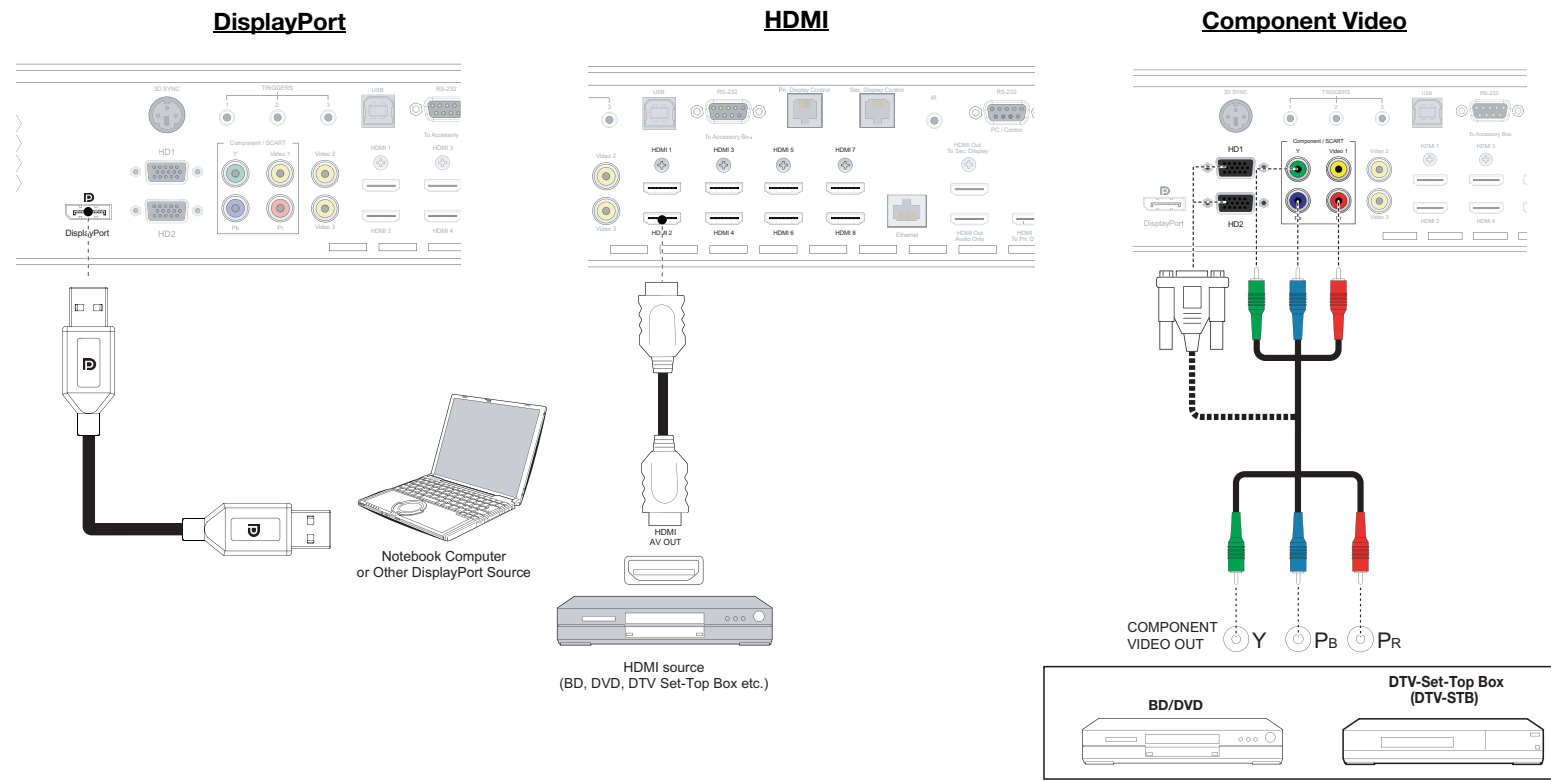
<b>15</b>	Display calibration: adjust the following <b>for each Dimension Digital Controller input and display mode (resolution/frame rate)</b> ; save settings when finished: <ul style="list-style-type: none"> <li>• Aspect ratio</li> <li>• Brightness</li> <li>• Contrast</li> <li>• Color level</li> <li>• Tint</li> <li>• Input position</li> <li>• Color temperature and white balance</li> </ul>	60 through 79
<b>16</b>	Prepare Runco Active 3D Glasses for use and test with 3D source material	94

#### Connecting the Projector and 3D Emitter to the Dimension Digital Controller

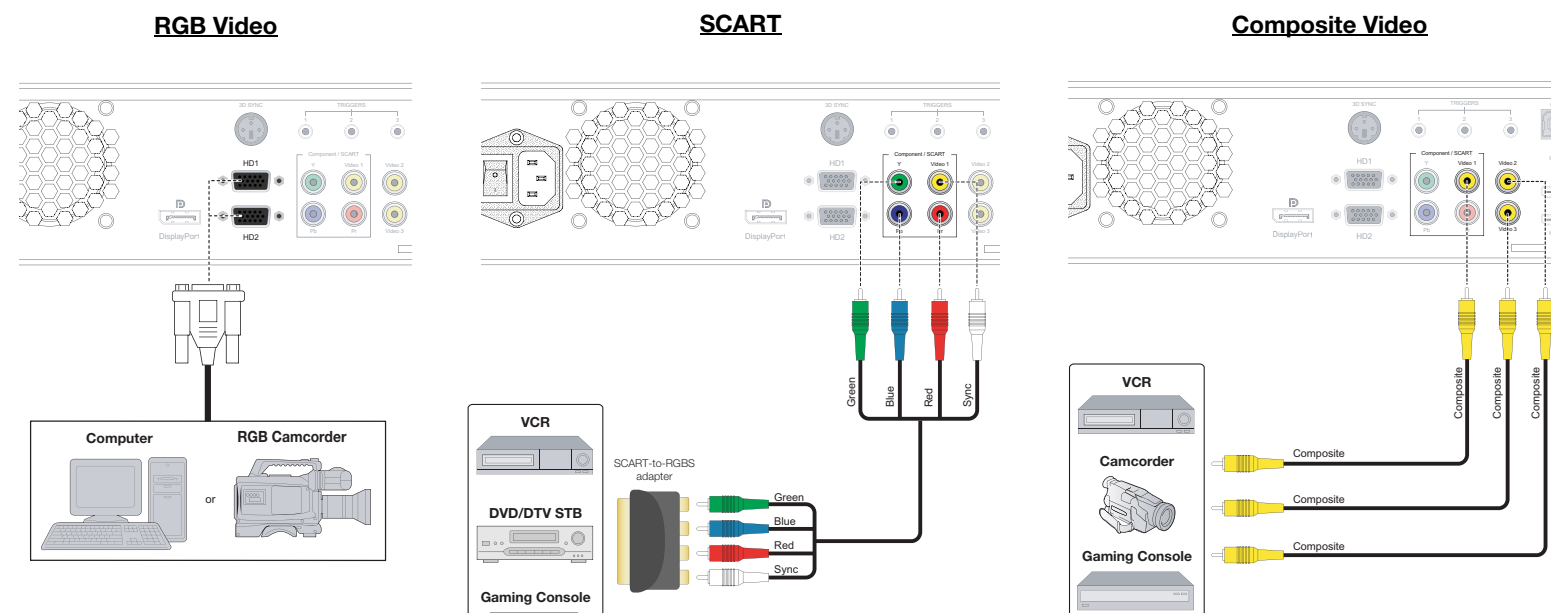
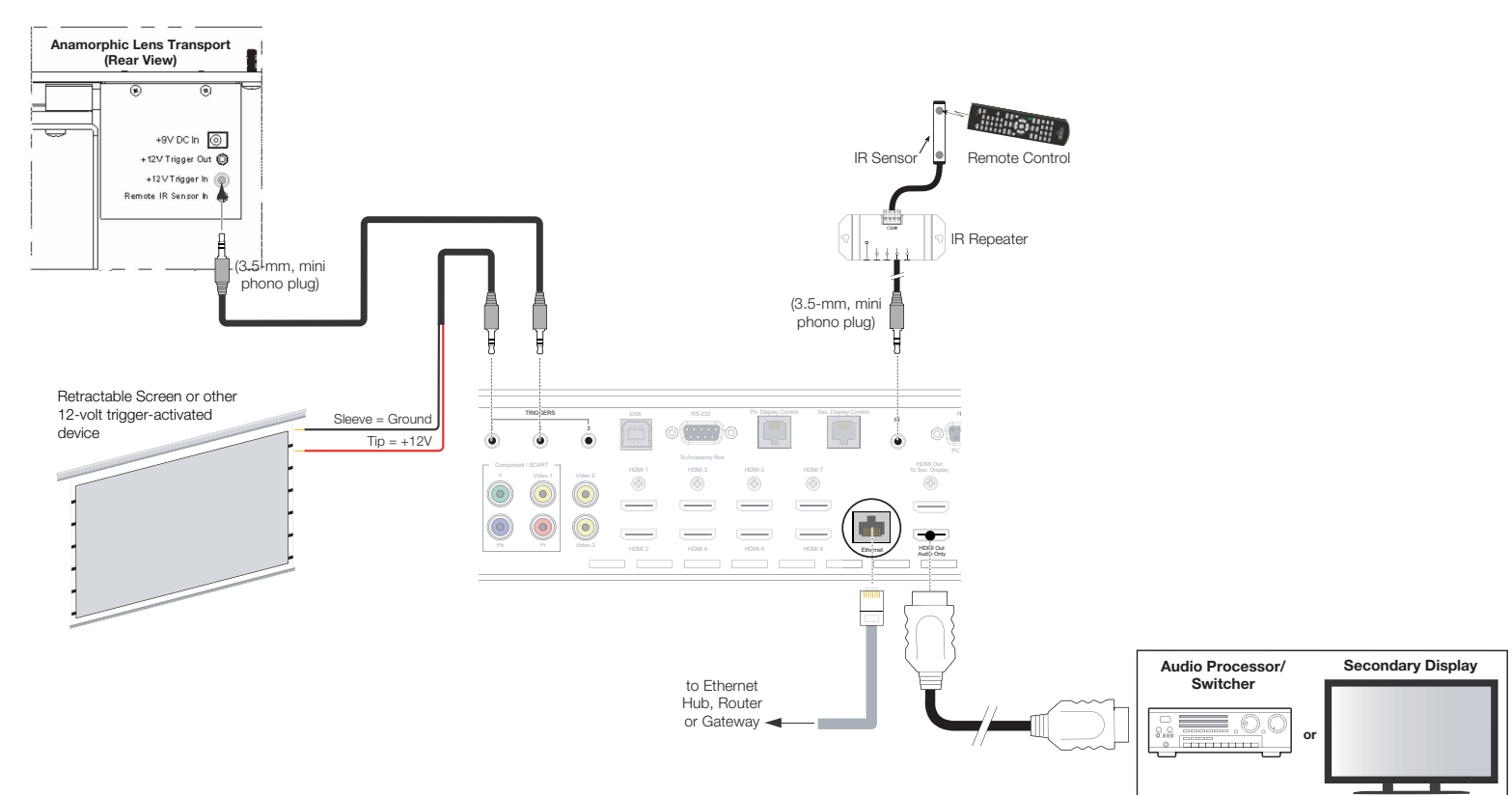


**Note:** Runco recommends using the RS-232 communication link between the LS-12HBd projector and the Dimension Digital Controller. However, display control using HDMI CEC control messages is also possible. For more information on this capability, please contact Runco Technical Support.

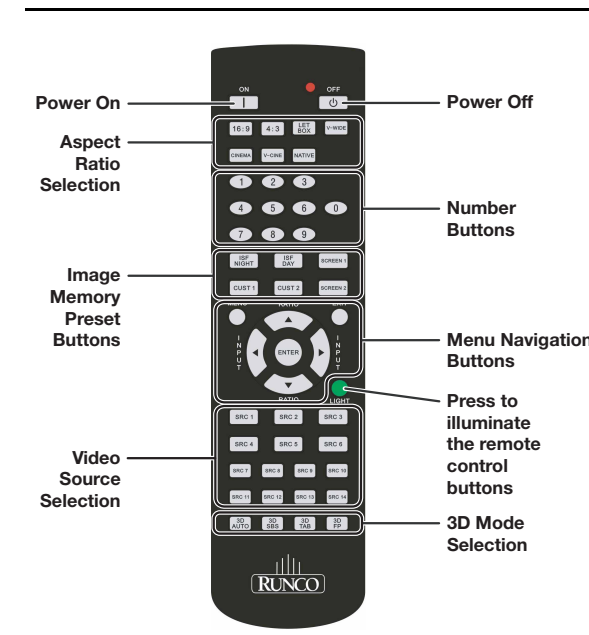
# Connecting Sources to the Dimension Digital Controller



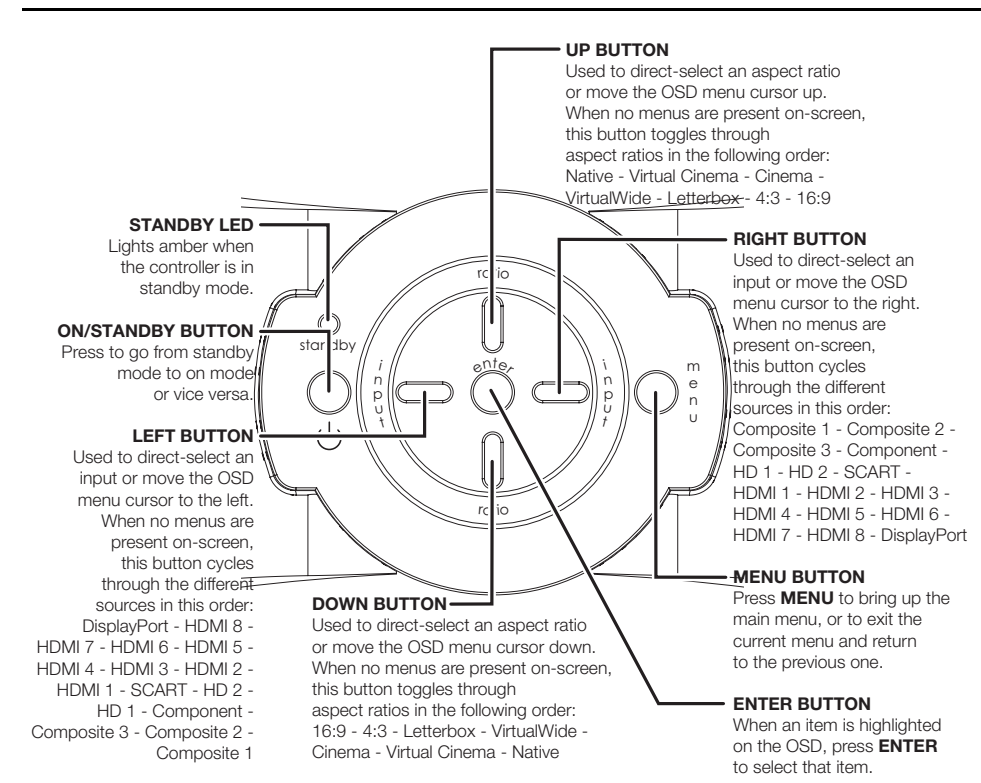
# Connecting Other Equipment to the Dimension Digital Controller (optional)



## Remote Control



## Dimension Digital Controller Front-Panel Keypad



# OSD Menu Tree

**Note:** Default settings appear in **bold type**. Settings marked with an asterisk (\*) apply to 2D content only.

<b>Input Source</b>	Composite 1	HDMI 1
	Composite 2	HDMI 2
	Composite 3	HDMI 3
	Component	HDMI 4
	HD 1	HDMI 5
	HD 2	HDMI 6
	SCART	HDMI 7
	DisplayPort	HDMI 8
<b>Aspect Ratio</b>	16:9	
	4:3	
	Letterbox	
	VirtualWide	
	Cinema	
	Virtual Cinema	
	Native	
	Auto Cinema	
<b>Screen</b>	<b>Screen 1</b> / Screen 2	
<b>Picture</b>	Brightness	
	Contrast	
	Color	
	Tint	
	Sharpness	
	Noise Filter	
<b>Input Position</b>	Left/Right	
	Up/Down	
	Width	
	Height	
	Overscan	
	Overscan Mode (Zoom/Crop)	
	Phase (RGB/Component/SCART signals only)	
	Tracking (RGB/Component/SCART signals only)	
	Recall ISF Night or ISF Day	
	Recall/Save Custom 1 or Custom 2	
Reset Custom 1 and Custom 2 to Factory Default		
<b>3D Processing</b>	3D Mode (Auto, Off, Side-by-Side, Top-and-Bottom or Frame Packing)	
	Reverse Eyes (On/Off)	
<b>Sleep Timer</b>	<b>Off</b> , 30 Minutes, 60 Minutes, 90 Minutes, 2 Hours or 4 Hours	
<b>Information</b>	Signal	
	System	
	Network	
	Field Service	
	Manufacturing	

<b>Calibration</b>	Display Color - Common Settings	Gain	-100, -99... <b>0</b> ... 99, 100 (Red, Green, Blue)
		Offset	
		Gamma	Mode ( <b>Simple</b> / Advanced)
			Simple (1.8, 2.0, <b>2.2</b> , 2.35, 2.5)
			Advanced ( <b>0</b> (2.2 gamma curve), 1, 2, 3 ... 20 (custom gamma tables))
		Color Temp	Simple (5500K, <b>6500K</b> , 7500K or 9300K)
		Color Gamut*	<b>Auto</b> , REC709, SMPTE-C, EBU, Native or PCE
		PCE*	Red x, y / Green x, y / Blue x, y / White x, y
			Yellow x, y / Cyan x, y / Magenta x, y
		Display Color - Projector Settings	Lamp
	Input Image	Brightness	
		Contrast	
		Color	-50, -49 ... <b>0</b> ... 49, 50
		Tint	
		Sharpness	
	Input Color	Gain	-32, -31... <b>0</b> ... 31, 32
		Offset	(HD 1, HD 2 and Component inputs only)
		Chroma Delay	<b>0</b> , 1, 2 ... 7 (Composite inputs only)
		Noise Filter	<b>0</b> , 1, 2 ... 63
	Save ISF Night	Back / Confirm	
	Save ISF Day		
	Copy/Paste	Memory Preset	Copy Settings
			Paste Settings
		Aspect Ratio	Copy Settings
			Paste Settings
	Output Shift	Left/Right	
		Up/Down	-50, -49 ... <b>0</b> ... 49, 50
		Width	
		Height	-50, -49, 48 ... <b>0</b>
Screen Masking		<b>0</b> , 1, 2 ... 100 (Top / Bottom / Left / Right / Test Pattern Enable)	
Image Alignment	Corner Alignment	Top Left / Top Right / Bottom Left / Bottom Right / Test Pattern Enable	
	Midpoint Alignment	Center / Top Middle / Left Middle / Right Middle / Bottom Middle / Test Pattern Enable	
Adjustment Mode	<b>Both</b> , Primary or Secondary		
Splash Configure	Owner Name		
	ISF Calibrated		
	ISF Other		
	Splash Timer	5, 6, 7 ... <b>15</b> ... 59, 60	
	Splash Enable	On/Off	
OSD Position	Hor. / Ver.	<b>0</b> , 1, 2 ... 100	

<b>Service</b>	Test Video	Color Bars 1	
		Color Bars 2	
		Focus	
		Grey Bars	
		Full White	
		Primary / Secondary / Dual Alignment	
		3D	
	Input Names	Rename/Restore	
	Remote Control	Remote Code	00000 ... <b>08209</b> ... 65535 or 88999
		SRC 1-7 Keys	(select a key, then choose a source to assign to it)
		SRC 8-14 Keys	
	Display Device - Configure	Installation - Picture Orientation	Auto, <b>Floor Front</b> , Ceiling Front, Floor Rear or Ceiling Rear
		Lens	Focus
			Zoom
			Shift
		Display Info. (read-only)	Projector Serial Number
		Lamp Hours Reset	Lamp Hours
		Diagnostics	Yes / No
		Altitude	White, Red, Green, Blue, Yellow, Cyan, Magenta
		Display 3D Settings	<b>Auto</b> / High
		Internal 3D Settings	(n/a)
	24Hz 3D Mode	Sync Delay, Test Pattern Enable	
	Network	IP Configuration	<b>120 Hz 6:4</b> or 120 Hz 5:5
		Auto Firmware Upgrade	DHCP ( <b>On</b> / Off), IP Address, Subnet Mask, Default Gateway, Communication Test
		E-Mail Notification	Auto Check for New Firmware, Auto Perform Upgrade, Check for New Firmware
		Remote Network Control	E-Mail Address, Error Notification, Error Notification to Runco, Periodic Service Notification, Lamp Life Notification, Customer Information, E-Mail Calibration Data
			<b>On</b> / Off
	Color Space	<b>Auto</b> , REC601, REC709, RGB-PC or RGB-Video	(Not available on Composite 1, Composite 2 or Composite 3 inputs)
	Triggers	1 / 2 / 3	
	Miscellaneous	Language	<b>English</b> , Français, Deutsch, Italiano, Español, Svenska, 简体中文 (Simplified Chinese), 繁體中文 (Traditional Chinese), Português, Русский (Russian), 日本語 (Japanese) or 한국어 (Korean)
OSD Timer		0 (no timeout) or 5, 6, 7 ... <b>30</b> ... 60 sec.	
OSD Messages		On / Off	
Blank Screen Color		Red/Green/Blue = <b>0</b> , 1, 2, 3 ... 255	
Sidebar Color			
Film Mode (SD sources only)		On / Off	
CUE (Chroma Upsampling Error)		On / Off	
Sync Threshold		0, 1, 2 ... 15 (HD 1, HD 2 and Component inputs only)	
HDMI EDID Extension		<b>On</b> / Off (per HDMI and DisplayPort input)	
Audio Format		Combined / HDMI Out (Pri. Display) / HDMI Out (Sec. Display) / <b>HDMI Out (Audio Only)</b>	
Front Panel Brightness	CEC	<b>On</b> / Off	
	HPD Toggle Rejection	<b>Auto</b> / On / Off	
	Logo LED	0 (off), 1, 2 ... <b>31</b>	
Auto Power Off	Standby LED	<b>On</b> / Off	
	LCD	0 (off), 1, 2, 3 or <b>4</b>	
Standby Mode	Enable	On / Off / <b>No Signal</b>	
	Hours	<b>1</b> , 2, 3, 4, ... 23, 24	
System Reset	<b>Low Power</b> / Fast Startup		

# Serial Communications



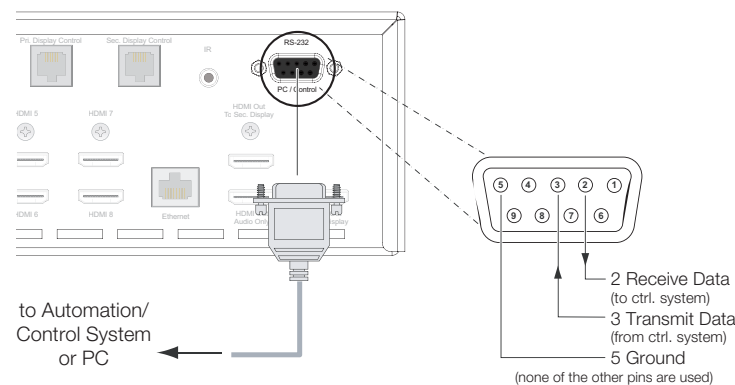
Note

Connect your control system or PC to the RS-232 input of the Dimension Digital Controller as shown in the diagram at right.

Configure the RS-232 controller or PC serial port as follows: no parity, 8 data bits, 1 stop bit and no flow control. Set the baud rate to 19200.

The following is a partial list of supported serial commands. For a complete list, refer to the **LightStyle™ LS-12HBd Installation/Operation Manual**.

**All commands must be followed by a carriage return character.**



Command	Description
<b>Power On/Off Commands</b>	
(PWR=0) or (KEY=2)	Turns projector off
(PWR=1) or (KEY=1)	Turns projector on
<b>Input Selection Commands</b>	
(INS=3) or (KEY=14)	Selects the Component input
(INS=0) or (KEY=13)	Selects the Composite 1 video input
(INS=1) or (KEY=24)	Selects the Composite 2 video input
(INS=2) or (KEY=25)	Selects the Composite 3 video input
(INS=7) or (KEY=19)	Selects the HDMI 1 input
(INS=8) or (KEY=20)	Selects the HDMI 2 input
(INS=9) or (KEY=21)	Selects the HDMI 3 input
(INS=10) or (KEY=22)	Selects the HDMI 4 input
(INS=11) or (KEY=81)	Selects the HDMI 5 input
(INS=12) or (KEY=82)	Selects the HDMI 6 input
(INS=13) or (KEY=83)	Selects the HDMI 7 input
(INS=14) or (KEY=84)	Selects the HDMI 8 input
(INS=15) or (KEY=85)	Selects the DisplayPort input
(INS=4) or (KEY=17)	Selects the RGB HD 1 input
(INS=5) or (KEY=18)	Selects the RGB HD 2 input
(INS=6) or (KEY=23)	Selects the SCART input
<b>Aspect Ratio Commands</b>	
(ASP=1) or (KEY=9)	Selects the 16:9 aspect ratio
(ASP=0) or (KEY=10)	Selects the 4:3 aspect ratio
(ASP=4) or (KEY=44)	Selects the Cinema aspect ratio
(ASP=2) or (KEY=11)	Selects the Letterbox aspect ratio
(ASP=6) or (KEY=46)	Selects the Native aspect ratio
(ASP=3) or (KEY=12)	Selects the VirtualWide aspect ratio
(ASP=5) or (KEY=45)	Selects the Virtual Cinema aspect ratio
(ASP=7) or (KEY=86)	Selects the Auto Cinema aspect ratio

Command	Description
<b>Picture Adjust Commands (Calibration -&gt; Input Image menu)</b>	
(BRT= [-50...+50])	Sets a value for brightness
(CLR= [-50...+50])	Sets a value for color
(CON= [-50...+50])	Sets a value for contrast
(SHP= [-50...+50])	Sets a value for sharpness
(TNT= [-50...+50])	Sets a value for tint
<b>Image Preset Commands</b>	
(MMP=2) or (KEY=50)	Loads "Custom 1" image preset
(MMP=3) or (KEY=51)	Loads "Custom 2" image preset
(MMP=1) or (KEY=49)	Loads "ISF Day" image preset
(MMP=0) or (KEY=48)	Loads "ISF Night" image preset
<b>3D Mode Commands</b>	
(TDM?)	Returns the 3D mode setting
(TDM= [0...4])	Sets the 3D mode setting (0 = Auto, 1 = Off (2D), 2 = Side-by-Side, 3 = Top-and-Bottom, 4 = Frame Packing)
<b>Screen Commands</b>	
(SCN?)	Returns the screen setting
(SCN=0) or (KEY=38)	Sets the screen to Screen 1
(SCN=1) or (KEY=39)	Sets the screen to Screen 2
<b>Miscellaneous Commands</b>	
(IDN?)	Returns display device name
(IIR?)	Returns input resolution
(MDL?)	Returns product model name
(IOR?)	Returns output resolution
(RMN= [0...65535])	Sets the remote code
(RMN?)	Returns the remote code
(ISN?)	Returns Dimension Digital Controller serial number
(IFV?)	Returns firmware version number
(T[1...3][1...7]=[0...1])	12-volt trigger configuration: [1...3] = Trigger number [1...7] = Aspect ratio (1 = 16:9, 2 = 4:3, 3 = Letterbox, 4 = VirtualWide, 5 = Cinema, 6 = Virtual Cinema, 7 = Native) [0...1] = On/off (0 = Cancel previous assignment, 1 = assign)  <b>Example:</b> (T15=1) [CR] assigns Trigger 1 to Cinema aspect ratio.
The following serial commands are used to emulate buttons on the remote control or Dimension Digital Controller front panel. Each button has its own serial command, so effectively it is as if you were using the IR remote. These commands provide active OSD responses just like IR remote commands.	
(KEY=6)	Down-Arrow (▼) key
(KEY=4)	<b>ENTER</b> key
(KEY=52)	<b>EXIT</b> key
(KEY=7)	Left-Arrow (◀) key
(KEY=3)	<b>MENU</b>
(KEY=8)	Right-Arrow (▶) key
(KEY=5)	Up-Arrow (▲) key

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